

===== WPI =====

TI - Metal thin film forming process for semiconductor device - includes introducing argon and hydrogen@ with plasma around silicon oxide film with chain end bonded by oxygen atom

AB - J07142412 Ar gas and H2 gas (or WF6 gas) are introduced with plasma around a SiO2 film, with the chain end is bonded by O-atom, and Si-O bond on the surface of SiO2 is cut off. End O-atom is substd. by H-atom to make SiO2 surface activated, and W thin film is formed by CVD process with VF6 gas and H2 gas.

- ADVANTAGE - Good adhesive metal W thin film is formed even on the insulating layer.

- (Dwg.0/12)

PN - JP7142412 A 950602 DW9531 H01L21/205 015pp

PR - JP930261766 930924;JP930090742 930325

PA - (YAWA) NIPPON STEEL CORP

MC - L04-C10 M13-E01

- U11-C05C3

DC - L03 M13 U11

IC - C23C16/44 ;H01L21/205

AN - 95-235200 [31]

===== PAJ =====

TI - DEPOSITION OF THIN METAL FILM IN SEMICONDUCTOR DEVICE

AB - PURPOSE:To deposit a thin metal film having low resistance and residual stress by reforming the surface of an insulating film through plasma substitution reaction of a reducing gas, introducing a material gas containing a metal for forming the thin metal film onto the reformed surface of insulating film, and then depositing the thin metal film by CVD.

- CONSTITUTION:Ar gas and H2 gas are introduced in the vicinity on the surface of a substrate and plasma is generated. Consequently, the Si-O bond on the surface of an interlayer insulating film is broken and an H atom is bonded in place of an O atom thus bringing about a hydrogen termination. A material gas, i.e., WF6 gas, is then introduced along with a reducing gas, i.e., H2 gas, onto the surface of the substrate where CVD is effected. Since the surface of the interlayer insulating film 5 is reformed from oxygen termination into hydrogen termination, substitution reaction is accelerated easily between an H atom and a W atom thus forming a firmly bonded thin film 7 of tungsten on the interlayer insulation film 5. This method allows deposition of a thin metal film with high deposition performance even on an insulating film.

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ABV - 095009

AP - JP930352991 931229

PA - NIPPON STEEL CORP

IN - IZUMI HIROHIKO

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